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PATENT APPLICATION
Mo5494
LeA 32,524

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION OF) EXPEDITED UNDER 37 CFR 1.116
THOMAS ECKEL ET AL) EXPEDITED PROCEDURE
SERIAL NUMBER: 09/485,288) EXAMINING GROUP NO.: 1714
FILED: FEBRUARY 7, 2000) EXAMINER: V. HOKE
TITLE: FLAME RESISTANT ABS POLY-)
CARBONATE MOULDABLE)
MATERIALS)
RESPONSE

Assistant Commissioner for Patents

Washington, D.C. 20231

Sirs:

The Office Action dated July 11, 2001 issued in the subject patent application has been received and reviewed and the following is in response thereto. Kindly reconsider the application in light of the presently submitted declaration and the remarks that follow. A separate Petition for Extension of Time is being submitted simultaneously herewith.

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The claimed invention is directed to a thermoplastic molding composition that contains polycarbonate, a graft polymer, an optional vinyl copolymer, a mixture of phosphorous compounds and fluorinated polyolefin. The invention resides in the finding that the properties of the composition critically depend on the particle size of the graft base and on the form of the phosphorous compounds. Accordingly, the composition is required to have the phosphorous compounds present as a specific mixture and the particle size (d_{50}) of the graft polymer to be in the range of 0.20 to 0.35 μm .

As reported in the experimental section of the application, the mixture of phosphorous compounds imparts to the composition advantageous Vicat B temperature, ultimate tensile strength, yield stress and tensile modulus of elasticity. The critical dependence of the properties on the particle size is shown by the results of the several experiments reported in the enclosed declaration by Dr. Eckel. A comparison between the inventive composition and corresponding compositions that differ from the former only in terms of the relevant particle size show the criticality of this parameter to the mechanical properties and stress cracking behavior.

The claims stand rejected under 35 U.S.C. 103 said to be unpatentable over Japanese Patent No. 07-11119 (abstract) taken with Lee (U.S. patent 5,674,924), Kakegawa et al (U.S. Patent 5,455,292) and Nishihara et al. (U.S. Patent 5,900,446)

Japanese Patent no. 07-11119 appears to disclose a composition containing polycarbonate, graft polymer of conjugated diene rubber having an average grain size of 0.15 to 0.35 micron and an aromatic diphosphate conforming to a formula and PTFE. The composition is said to be fire resistant as well as shock and heat resistant. No mention is made of any mixture of phosphates is evident in the recited document. Moreover, no recognition as to the significance of the particle size is at all evident.

Lee disclosed a flameproof composition containing polycarbonate, ABS of the core/shell type, a phosphate composition and perfluoroalkane polymer. In column 2 lines 4-12 and column 4 line 18-20, styrene-containing copolymers are specifically excluded from the referenced composition. Nothing in Lee could be taken as suggesting the criticality of particle size.

Kakegawa disclosed a composition that contains any of a large variety of resins and a phosphoric acid ester where the addition of a flame retardant agent contained in the resin composition does not cause smoking or volatilize during molding, processing and does not bleed to the surface of the molding. Nothing in the Kakegawa document may be seen as disclosing the particle size limitation of the graft polymer or the mixture of phosphorous compounds, both being keys to the presently claimed invention.

Nishihara disclosed a composition wherein flame retardant may be, in accordance with column 10 line 43 et seq., any of a large variety of compounds including halogenated, non-halogenated, organic and inorganic compounds. Also, the particle size of the rubber particles is said - in column 9 line 25 et. seq. - to preferably be in the range of 0.5 to 4.0 microns. Compare the present invention where the relevant particle size - 0.2 to 0.35 microns - is clearly outside the referenced range, and the flame retardant is a specific mixture of phosphorous compounds.

The results reported in the declaration are clearly surprising and unexpected in view of the art and are believed to address and overcome the stated rejection.

Believing the above represent a complete response to the Office Action and that the application is in condition for allowance, applicants request the earliest issuance of an indication to this effect.

Respectfully submitted,

By _____


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